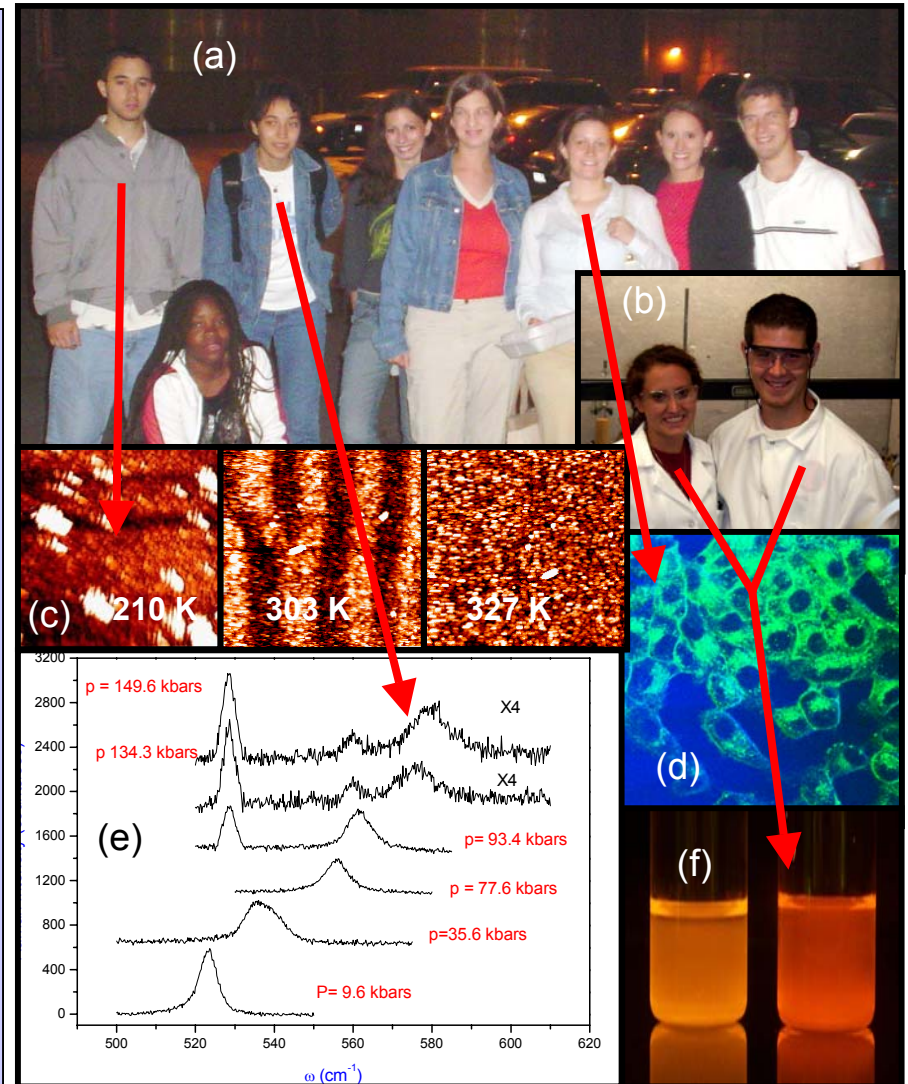


# REU Site: Transdisciplinary Undergraduate Research Initiative on Nanostructured Semiconductors

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## Education and Outreach:

During summer 2004, this program brought together a diverse cohort of 13 students from 12 different universities, representing 5 major fields of study in science and engineering. These students worked on cutting-edge research projects with 9 faculty across 4 academic departments, around the common themes of synthesis, characterization, and application of semiconductor nanostructures. The images on the right show (a) several of the students on a social outing, (b) two of the students in the lab, (c) magnetic force microscopy images of MnAs undergoing a ferromagnetic to paramagnetic phase transition, (d) a confocal fluorescence image of cells treated with dye-doped polymer nanoparticles, (e) Raman spectra of silicon nanoparticles at high pressures, and (f) dispersions of photoluminescent silicon nanoparticles. Arrows from (a) and (b) to (c) through (f) connect students to results from their projects.



In addition to the ten-week intensive research project, this summer program included social outings to the Whirlpool Jet Boat Tours in Niagara Falls, a Buffalo Bisons baseball game, sailing on Lake Erie on the Catamaran Moondance, and a visit to NanoDynamics, a nanotechnology startup company in Buffalo. Students also participated in a weekly seminar and discussion on ethics in research and professional practice, led by Mike Ryan, associate dean for undergraduate education in the UB School of Engineering.. It is expected that several forthcoming publications will include REU students as co-authors. In an anonymous exit survey, students unanimously and enthusiastically indicated that the REU program had provided them with a positive learning experience. The vast majority said that this increased their motivation to attend graduate school and earn a Ph.D. We were pleased to be able to recruit eight women into the program, including two African American women.